



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,251	05/10/2005	Daniel Kortvelyessy	2002P03595WOUS	8745

7590 12/19/2008
Siemens Corporation
Intellectual Property Department
170 Wood Avenue South
Iselin, NJ 08830

EXAMINER

WILKINS III, HARRY D

ART UNIT	PAPER NUMBER
----------	--------------

1795

MAIL DATE	DELIVERY MODE
-----------	---------------

12/19/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/511,251	Applicant(s) KORTVELYESSY ET AL.	
	Examiner Harry D. Wilkins, III	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 October 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-14 and 17-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-14 and 17-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 10-13, 17, 22-24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hocheng (US 6,315,885) in view of Inoue (US 3,616,346).

Hocheng teaches (see figure 1, abstract and cols. 3-6) an apparatus for electropolishing a component including a vessel (3) sized and configured to contain an electrolyte and the component, an electrode (11) arranged in the electrolyte and electrically connected to the component through an electrical current pulse generator (1) capable of generating current pulses and an ultrasound probe (2) arranged in the electrolyte to cause agitation to improve the electropolishing process.

With respect to the component being a turbine component, such feature relates to the workpiece acted upon by the claimed apparatus and is not given patentable weight. See MPEP 2114 and 2115.

Thus, Hocheng fails to teach that the current pulse generator operated with both positive and negative pulses.

Inoue teaches (see cols. 1-2) that it was known in electrolytic machining operations that when using direct current or pulsed direct current, a passivation film can be formed on the workpiece surface which limits the machining rate. Inoue discloses

Art Unit: 1795

that the problem of the passivation film can be overcome by application of not only the positive current pulses, but also intervening negative current pulses to remove the passivation film.

Therefore, it would have been obvious to one of ordinary skill in the art to have applied the negative current pulses as taught by Inoue in the process of Hocheng for the purpose of preventing passivation of the workpiece surface which can lead to increased machining times and lowered accuracy.

Regarding claim 11, this feature relates to the workpiece acted upon by the claimed apparatus and is not given patentable weight. See MPEP 2114 and 2115.

Regarding claim 12, the power supply (electrical current pulse generator) taught by Hocheng was capable of operating with a set potential over which the current pulses were applied. As such, the prior art was capable of operating in the claimed fashion. See MPEP 2114 and 2115.

Regarding claim 13, Hocheng teaches a process including the steps of (1) arranging the component and an electrode in an electrolyte, (2) electrically connecting the component, the electrode and a power supply, (3) generating a pulsed current using the power supply (4) combining a plurality of current pulses in sequence during the electropolishing and (5) arranging an ultrasound probe within the electrolyte to improve the electropolishing process. With respect to the claimed step "forming a sequence of current/voltage pulses by a plurality of different blocks with a block having a current pulse" Hocheng teaches (see col. 5, lines 45-49) that operating the DC power mode included several known operating parameters that could be optimized including voltage,

Art Unit: 1795

current and pulsing rate. Therefore, Hocheng teaches a step of forming a sequence of current pulses to create an optimum electropolishing effect. As above, Inoue provides motivation for adding a step of applying not only the positive current pulses taught by Hocheng, but also negative current pulses for the purpose of preventing passivation of the workpiece surface.

Regarding claim 17, Hocheng teaches that each block would be defined by current value, pulse rate, etc.

Regarding claims 22 and 23, Hocheng teaches using a simple on-off (square-wave) pulse train.

Regarding claim 24, Hocheng teaches that the pulse rate was “a fraction of a second per cycle”. Thus, Hocheng fails to expressly teach that the pulse times were in the range of 1 to 10 milliseconds. However, since Hocheng teaches that the pulsing rate was a result effective variable, it would have been obvious to one of ordinary skill in the art to have optimized the pulsing rate such that the pulse times were within the claimed range.

Regarding claim 26, the plurality of current pulses are combined repeatedly until a sufficient amount of material has been removed.

3. Claims 14, 20, 21 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hocheng (US 6,315,885) in view of Inoue (US 3,616,456) as applied above to claims 10-13, 17, 22-24 and 26, and further in view of Tyler et al (US 4,004,992).

Hocheng and Inoue fail to teach applying a “base” current at all times and superimposing the pulses onto the base current.

However, it was known in the art of electropolishing, that application of a current pulse sequence could be superimposed onto an existing base current. Tyler et al show (see abstract, figure 6 and col. 2) that the base current and superimposed pulses increased uniformity of electropolishing and reduced wear on the working electrode.

Therefore, it would have been obvious to one of ordinary skill in the art to have adapted the method of Hocheng and Inoue to utilize a base current as is taught by Tyler et al because the combination of a base current and current pulses increased uniformity and reduced working electrode wear.

4. Claims 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hocheng (US 6,315,885) in view of Inoue (US 3,616,456) as applied above to claims 10-13, 17, 22-24 and 26, and further in view of Kool et al (US 6,599,416).

Regarding claim 18, Hocheng fails to teach matching each block to a constituent of an alloy to be removed to boost the removal of the constituent.

Kool et al teaches the current source/cell potential can further be “tuned”, which relies on adjusting the cell potential to selectively strip or partially strip portions of the metal from the article/component, thus suggesting that different applied

potentials/currents are more effective at removing certain layers of the coating based on the needs of one skilled in the art and would allow for “different blocks” of pulsed current at different times during the stripping process as necessary to most effectively strip the metal article [7] (col. 9 lines 3-12, col. 8 lines 30-39, figure 5 and 6, col. 10 lines 48-57).

Therefore, it would have been obvious to one of ordinary skill in the art to have created blocks specifically tuned for removing a specific constituent from the component as taught by Kool et al in the process of Hocheng because the tuned blocks increased removal of the constituent.

Regarding claim 19, Hocheng fails to teach removing a MCrAlY coating.

Kool et al teach removing an alloy layer of the MCrAlY type (col. 6 line 20-27) and wherein M is iron, cobalt, or nickel (col. 5 lines 50-56). The process operated by an electropolishing technique on turbine engine components.

Therefore, it would have been obvious to one of ordinary skill in the art to have adapted the process of Hocheng to process turbine engine components covered with a MCrAlY coating as suggested by Kool et al because Kool et al teach that the same electropolishing process was adequate for performing the electropolishing on the MCrAlY coated turbine components and Hocheng teaches that the electropolishing process was able to reduce surface roughness.

Response to Arguments

5. Applicant's arguments filed 29 October 2008 have been fully considered but they are not persuasive. Applicant has argued that Hocheng teaches away from the claimed invention of applying both positive and negative current pulses.

In response, nothing in Hocheng that Applicant discusses is a direct teaching away from applying the positive and negative current pulses. An actual teaching away in Hocheng would have been "Application of current pulses or a negative current pulse has a bad side effect on the operation of the device". Further, Applicant's remarks completely ignore the clear suggestion to one of ordinary skill in the art to apply the positive and negative current pulses from Inoue et al for the purpose of preventing passivation of the workpiece surface which can lead to increased machining times and lowered accuracy.

With respect to Applicant's remarks regarding the use of the device for removal of a corroded layer, Applicant's attention is again directed to MPEP 2114 and 2115. This argued feature relates to the manner of operation of the claimed structure, and the prior art meets all of the claimed structural elements.

Also, with respect to Applicant's remarks that Tyler et al and Kool et al are not combinable, Applicant is reminded that all of the references combined relate to electrolytic removal of material from a surface, and one of ordinary skill in the art was aware that the convention for describing current flows was interchangeable. Here, Tyler et al refers to the electric current as negative, but does so with respect to the electrode, not the workpiece. This is equivalent to Applicant's claimed positive current with respect to the workpiece. Further, Kool et al relate to the use of "blocks" for removing different layers of material. One of ordinary skill in the art, when combining the teachings of Kool et al with that of Hocheng and Inoue et al, would have been led to use both the pulsing-reversing current of Inoue et al, with the corresponding advantage disclosed by Inoue et

al, and the “block” arrangement of Kool et al, with the corresponding advantage disclosed by Kool et al.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry D. Wilkins, III whose telephone number is 571-272-1251. The examiner can normally be reached on M-F 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1795

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Harry D Wilkins, III/
Primary Examiner, Art Unit 1795

hdw